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     (FILE 'HOME' ENTERED AT 09:36:29 ON 13 OCT 2004)

     FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, CANCERLIT, JAPIO' ENTERED AT
     09:37:01 ON 13 OCT 2004
L1             0 S (PA? CELLS)AND ZP3
L2            74 S (HUMAN CELL) AND ZP3
L3            18 S L2 AND RECOMBIN?
L4            15 DUPLICATE REMOVE L3 (3 DUPLICATES REMOVED)
L5         25947 S (HUMAN CELL LINE)
L6            21 S L5 AND ZP3?
L7            11 DUPLICATE REMOVE L6 (10 DUPLICATES REMOVED)
L8             0 S L7 NOT L6

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updated search
LCook 10/13/04

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AN 1995:107296 BIOSIS

DN PREV199598121596

TI Mapping the mouse **ZP3** combining site for sperm by exon swapping and site-directed mutagenesis.

AU Kinloch, Ross A.; Sakai, Yutaka; Wassarman, Paul M. [Reprint author]

CS Roche Inst. Mol. Biol., Roche Res. Cent., Nutley, NJ 07110, USA

SO Proceedings of the National Academy of Sciences of the United States of America, (1995) Vol. 92, No. 1, pp. 263-267.
CODEN: PNASA6. ISSN: 0027-8424.

DT Article

LA English

ED Entered STN: 13 Mar 1995
Last Updated on STN: 13 Mar 1995

AB During fertilization in mice, sperm bind to mouse **ZP3** (mZP3), a M-r apprxeq 83,000 glycoprotein present in the ovulated egg extracellular coat, or zona pellucida. Sperm recognize and bind to specific serine/threonine-linked (O-linked) oligosaccharides present at the mZP3 combining site for sperm. Binding to mZP3 induces sperm to undergo a form of exocytosis, the acrosome reaction. To map the mZP3 combining site for sperm, we examined the effect of exon swapping and site-directed mutagenesis on the glycoprotein's two activities, sperm binding and induction of the acrosome reaction. Stably transfected embryonal carcinoma **cell** lines were established that synthesized recombinant glycoproteins and secreted them into the culture medium. The glycoproteins were partially purified from culture medium and assayed for sperm-binding and acrosome reaction-inducing activities. Results of these assays suggest that **glycosylation** of one or more of five serine residues, clustered together in a polypeptide region encoded by mZP3 gene exon 7, is required for activity. Interestingly, this polypeptide region exhibits considerable sequence divergence during evolution and may be related to the proposed role for oligosaccharides in species-specific gamete adhesion during mammalian fertilization.

CC Genetics - Animal 03506
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Carbohydrates 10068
Reproductive system - Physiology and biochemistry 16504
Development and Embryology - General and descriptive 25502

IT Major Concepts
Development; Genetics; Reproductive System (Reproduction)

IT Miscellaneous Descriptors
ACROSOME REACTION; FERTILIZATION; GAMETE ADHESION; ZONA PELLUCIDA

ORGN Classifier
Muridae 86375

Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia

Organism Name
Muridae

Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

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AN 1993:438886 BIOSIS

DN PREV199396093511

TI Identification of porcine oocyte 55 kDa alpha and beta proteins within the zona pellucida glycoprotein families indicates that oocyte sperm receptor activity is associated with different zona pellucida proteins in different mammalian species.

AU Toepfer-Petersen, Edda [Reprint author]; Mann, Karlheinz; Calvete, Juan Jose

CS Inst. Reproduktionsmed., Tieraerztliche Hochschule Hannover, Buenteweg 15, D-30559 Hannover, Germany

SO Biological Chemistry Hoppe-Seyler, (1993) Vol. 374, No. 7, pp. 411-417. CODEN: BCHSEI. ISSN: 0177-3593.

DT Article

LA English

ED Entered STN: 22 Sep 1993
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AB Porcine zona pellucida (pZP) glycoprotein 55 kDa is composed of two core polypeptides, denominated alpha and beta. Sperm receptor activity has been shown to be associated with the oligosaccharide structures attached to the pZP55-alpha component. Here, we report a simple one-step HPLC procedure for the isolation of the alpha- and beta-components of the 55 kDa pZP proteins after enzymatic partial deglycosylation. N-Terminal sequence and protein chemical analysis of native proteins and of internal peptides from the alpha and the beta forms has established their homology with the rabbit 55 kDa zona pellucida glycoprotein and mouse **ZP3** , respectively. This, in turn, is relevant for a standardization of the ZP nomenclature in mammalian species. Moreover, our results imply that the sperm receptor activity in diverse mammalian species reside on oligosaccharide chains attached to nonhomologous zona pellucida glycoproteins. We hypothesize that acquisition of species-specific activity on the oocyte zona pellucida may thus be related to a species-specific **glycosylation** process.

CC General biology - Taxonomy, nomenclature and terminology 00504
Cytology - Animal 02506
Comparative biochemistry 10010
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Carbohydrates 10068
Biophysics - Molecular properties and macromolecules 10506
Biophysics - Membrane phenomena 10508
Reproductive system - Physiology and biochemistry 16504
Development and Embryology - General and descriptive 25502

IT Major Concepts
Biochemistry and Molecular Biophysics; **Cell** Biology; Development; General Life Studies; Membranes (**Cell** Biology); Reproductive System (Reproduction)

IT Miscellaneous Descriptors
AGGRESSION; ESTROGEN; INFANT CARE; LUTEINIZING HORMONE; OVARIAN ACTIVITY; PARTURITION; SCENT MARKING; SOCIAL BEHAVIOR

ORGN Classifier
Leporidae 86040
Super Taxa
Lagomorpha; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
Leporidae
Taxa Notes
Animals, Chordates, Lagomorphs, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Vertebrates

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ORGN Classifier
Suidae 85740
Super Taxa
Artiodactyla; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
Suidae
Taxa Notes
Animals, Artiodactyls, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Vertebrates

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Super Taxa
Artiodactyla; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
Suidae
Taxa Notes
Animals, Artiodactyls, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Vertebrates